

REMARKS

The Office Action mailed on October 05, 2006, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-59 were pending, with claims 14-30 being withdrawn. By this paper, Applicant cancels claims 3, 14-30, 40-42 and 44-59 and adds claims 66-70. Therefore, claims 1, 2, 4-13, 31-39, 43 and 66-70 are now pending.

Applicant respectfully submits that the present application is in condition for allowance for at least the reasons that follow.

Rejections Under 35 U.S.C. §112, Second Paragraph

In the Office Action, claim 38 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite. As seen above, claim 38 has been amended to depend from claim 37, and Applicant respectfully requests reconsideration in view of this amendment.

Rejections Under 35 U.S.C. §102

All of the independent claims and most of the dependent claims stand rejected under 35 U.S.C. §102 as being anticipated by Marttila (United States Patent No. 5,685,844) and/or Sage (United States Patent No. 6,582,393). In response, in order to advance prosecution, and without prejudice or disclaimer, Applicant has made the above amendments to the independent claims, and respectfully submits that the above claims are allowable for at least the reasons that follow.

Applicant relies on MPEP § 2131, entitled "Anticipation – Application of 35 U.S.C. 102(a), (b), and (e)," which states that a "claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Section 103 amplifies the meaning of this anticipation standard by pointing out that anticipation requires that the claimed subject matter must be "*identically* disclosed or

described” by the prior art reference. (Emphasis added.) It is respectfully submitted that neither Marttila nor Sage describe each and every element of independent claims 1 or 31.

I. Claim 1 recites a device for delivering liquid via a flow channel, wherein the device is bifurcated into a reusable component and a disposable component adapted to mate with the reusable component. The disposable component includes *a flow channel and a memory in which is stored one or more values, while the reusable component includes a controller adapted to read values from the memory.*

Marttila does not disclose or describe a two-part device, and also does not disclose that one part is disposable or that the two parts mate to one another. Sage does describe a two part device, but teaches that the memory is located on a component opposite the component that includes the flow tube, and that the memory is located on a reusable component as opposed to a disposable component. Further, Sage does not describe a controller adapted to read values from a memory, where the controller is located on one component and the memory is located on an opposite component (let alone located on a disposable component). Thus, neither Marttila nor Sage anticipate claim 1 for at least these reasons.

II. Claim 1 further recites that the memory has one or more empirical stored values indicative of at least one of an empirical flow property and an empirical geometric property of the flow channel. As detailed in the dependent claims (e.g., claims 7 and 8 and 65 and 70), the flow property is a volumetric flow rate value of a fluid previously passed through the flow channel and/or is indicative of a velocity of a fluid previously passed through the channel and/or is indicative of a time of flight of a fluid previously passed through the channel. Also as is detailed in the dependent claims (claims 5 and 6), the geometric property is indicative of a physical characteristic of the flow channel, which includes an effective cross-sectional area of the flow channel, etc.

Marttila does not teach that its memory includes empirical stored values indicative of empirical flow properties or empirical geometric properties. Indeed, Marttila does not indicate the use of any such stored values, let alone values based on empirical results. In Marttila, the memory is merely populated with delivery protocols for various liquids that may be delivered. Marttila's memory does not include the stored values as recited.

Sage also does not have a memory in which is stored empirical stored values. As with Marttila, Sage's memory is used for storing a schedule of delivery of a liquid medicament.

Claim 1 is thus not anticipated for at least this additional reason.

III. Claim 1 also recites that the controller is adapted to read the one or more empirical stored values from the memory while the disposable component is mated to the reusable component, and generates a flow control signal based on the one or more empirical stored values, where the valve is controlled based on the control signal.

Marttila does not teach the use of empirical stored values indicative of empirical flow properties or empirical geometric properties to generate a flow control signal which is used to control a valve. Indeed, Marttila does not indicate the use of values based on empirical results. There is no teaching in Marttila that indicates such a feature. Sage also does not utilize empirical stored values. Instead, Sage utilizes real time measurements and nominal values. Indeed, Sage specifically states that it is "not necessary to know any of the physical properties of the new replacement flow tube (except its total length, which can be accurately cut during manufacture)." (Sage, col. 11, lines 15-18.) Accordingly, Sage does not utilize empirical stored values. Just the opposite, he eschews such values.

Claim 1 is thus not anticipated for yet another reason.

IV. Claim 31, as amended, recites a device for delivering liquid via a flow channel, the device comprising, among other components, a memory having one or more empirical stored values respectively based on at least one of a product of (i) an empirical volume and an empirical time, (ii) an empirical flow rate and an empirical velocity, and (iii) an empirical area and an empirical velocity, related to the flow channel.

Claim 31 is allowable for at least the pertinent reasons detailed above with respect to claim 1. Claim 31 is further allowable because none of the cited references disclose a memory that include empirical stored values based on a product of any of "i" – "iii." Further, none of the cited references teach that the device is adapted to determine a volumetric flow rate of a liquid flowing through the flow channel based on the one or more empirical stored values. Claim 31 is thus allowable.

V. Many of the dependent claims are allowable for additional reasons, as will now be detailed.

Claim 2 recites a that the one or more empirical stored values are based on empirical data relating to the flow channel mated to the reusable component of the device. Again, none of the cited references teach utilizing empirical data as claimed.

Claim 5 recites that the empirical geometric property is indicative of a physical characteristic of the flow channel, while claim 6 recites that the physical characteristic is selected from the group consisting of an effective cross-sectional area of the flow channel, an effective radius of the flow channel, an effective height of the flow channel, an effective width of the flow channel, and an effective diameter of the flow channel. Neither Marttila nor Sage teach such features. These claims are likewise not anticipated.

Claim 7 recites that the empirical flow property is indicative of a volumetric flow rate value of a fluid previously passed through the flow channel, and claim 8 recites that the empirical flow property is indicative of a velocity of a fluid previously passed through the flow channel. The cited references do not teach these features.

Many of the other dependent claims are allowable for the pertinent reasons that make the just-recited claims allowable.

Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, various dependent claims are rejected under 35 U.S.C. §103(a) as being unpatentable over Sage. Applicant respectfully traverses the rejection as to the claims above, and submit that these claims are allowable because Sage does not teach each element of any of the claims, as detailed above. Sage also does not suggest each element of the claims, and thus the third requirement of MPEP § 2143 cannot be met with Sage.

New Claims

Claim 63 recites that the device includes a thermal time of flight sensor which comprises a first source adapted to introduce a thermal marker into the liquid flowing in the

flow channel, a second source adapted to illuminate the liquid flowing in the flow channel and a detector adapted to measure a change in illumination from the second source that passes through the flow channel as a result of the passage of the thermal marker through the illumination from the second source. The cited references do not teach these features.

Claim 64 recites that the flow channel has a rectangular cross-section. Neither Martila nor Sage teaches a flow channel that has a rectangular cross-section.

Claim 65 recites that the empirical flow property is indicative of a time of flight of a fluid previously passed through the flow channel, while claim 67 recites that the reusable component has been programmed to deliver the liquid according to a desired delivery regimen and the controller is adapted to control the valve to achieve the desired delivery regimen using at least one of the stored flow properties and the geometrical properties.

Claim 69 recites that the device is adapted to determine the volumetric flow of a liquid flowing through the flow channel based on the one or more empirical stored values when multiplied by a time of flight of the liquid. Claim 70 recites that the empirical flow property of claim 1 is based on at least one of an empirical fluid volume previously passed through the flow channel for a given time and an empirical flow rate of a fluid previously passed through the flow channel. Again, none of the cited references utilize empirical stored values.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

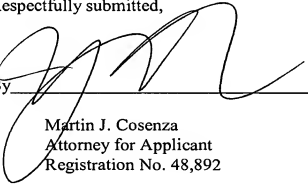
The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for

such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Stigell is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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